

# Major Life Events Are Associated with Depression among Employees of a Public University

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## ABSTRACT

**Introduction:** University employees are increasingly pressured to perform, which potentially lead to increased job stress. Stressful life events increase the risk of developing depression and lead to reduced productivity.

**Objectives:** This study aims to determine the prevalence of depression and its predictors among the employees of a public university.

**Methods:** In this cross-sectional study over a period of 4 months, validated Malay version of the Hospital Anxiety and Depression scale, Job Stress Scale and Social Readjustment Rating Scale were utilized for measurement of depression, job stress, and stressful life events, respectively.

**Results:** A total of 300 employees of a public university attending the staff clinic were recruited. The prevalence of depression was 12.7%. Using multiple logistic regression analyses, the presence of major life events had an adjusted odds ratio of 2.30 with depression. Other socio-demographic and job-related factors were non-significant.

**Conclusion:** Presence of major life events in the preceding year is independently associated with depression among the employees of a public university. Future study needs to explore the nature and individual's perception of specific stressful life events.

## KEY WORDS

stressful life event, major life event, life stress, social readjustment, social psychiatry

## INTRODUCTION

Numerous studies have investigated the relationship between life stress and susceptibility to physical and psychological problems in recent years<sup>1-4)</sup>. Life changes require adaptation on the part of the individual and are stressful, and the person experiencing a marked degree of life change during the recent past is susceptible to physical and psychological illness<sup>5)</sup>.

It is well established that stressful life events (SLE) play an important role in the onset of depressive episode<sup>6)</sup>. Moreover, the severity of SLE is also an important factor. Moderate and minor SLE were more present in recurrent than in first episodes of depression. However, major SLE did not show any difference between first and recurrent episodes<sup>7)</sup>.

Depression is associated with high levels of social and occupational impairment. In the Netherlands, around 58% of the work-related disabilities are related to mental health<sup>8)</sup>. While in the UK, it is estimated that around 30-40% of the sickness absence is attributable to some form of mental illness<sup>9)</sup>. Mental health issues affect employers directly through increased absenteeism, reducing productivity and profits, as well as an increase in costs to deal with them<sup>9)</sup>. The time lost to sickness absence in Malaysian workforce was estimated to be 1.60, 1.63 and 2.94 days in a year in government, semi-government and private agency, respectively<sup>10)</sup>.

Higher education is becoming more competitive by the day. The universities are now setting new goals to achieve a better academic ranking as a form of validation that will attract more students and secure public funds. Consequently, the university employees are facing plenty of challenges leading to increased job stress and reduced job satisfaction<sup>11)</sup>. Nonetheless, university employees are still a relatively under-researched population<sup>12)</sup>, with the primary focus to date being student health and wellbeing<sup>13-15)</sup>. Hence, the objective of this study was to determine the prevalence of depression and its predictors among the employees of a public university.

## METHODS

### Design, sample, and setting

This was a descriptive cross-sectional study. All categories of employees attending the health centre in Hospital Universiti Sains Malaysia (USM) during the study period were invited to participate in the study. Exclusion criteria were those with evidence of organic brain disease, history of substance abuse, had been diagnosed with a severe mental illness such as schizophrenia and bipolar disorders, or had

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**Table 1. Socio-demographic characteristics of depressed vs. non-depressed employees**

	HADS-D $\geq 9$ (n = 38)	HADS-D < 9 (n = 262)	p-value
Age, yr (%)			
< 30	17 (44.7)	69 (26.3)	0.032*
30-40	13 (34.2)	145 (55.3)	
> 40	8 (21.1)	48 (18.3)	
Gender, n (%)			
Male	20 (52.6)	126 (48.1)	0.608
Female	18 (47.4)	136 (51.9)	
Ethnic group, n (%)			
Malay	38 (100.0)	255 (97.3)	0.602
Non-Malay	0 (0.0)	7 (2.7)	
Religion, n (%)			
Muslim	38 (100.0)	256 (97.7)	1.000
Non-Muslim	0 (0.0)	6 (2.3)	
Education, n (%)			
Primary	10 (25.6)	80 (30.5)	0.501
Secondary	27 (74.4)	180 (68.7)	
Tertiary	1 (0.0)	2 (0.8)	
Marital status, n (%)			
Single	8 (21.1)	48 (18.3)	0.563
Married	30 (78.9)	207 (79.0)	
Divorced/widow	0 (0.0)	7 (2.7)	
No. of children, n (%)			
0-2	21 (55.3)	148 (56.5)	0.057
3-4	7 (18.4)	80 (30.5)	
$\geq 5$	10 (26.3)	34 (13.0)	
Occupation, n (%)			
Professional group	2 (5.3)	10 (3.8)	0.315
Support group 1	9 (23.7)	80 (30.5)	
Support group 2	27 (71.1)	157 (59.9)	
Others	0 (0.0)	15 (5.7)	
Duration of employment, yr (%)			
< 5	20 (52.6)	107 (40.8)	0.376
5-10	9 (23.7)	72 (27.5)	
> 10	9 (23.7)	83 (31.7)	

**Table 3. Logistic regression model for predictors of depression**

Risk factors	$\beta$	Wald	P-value	Odds ratio (OR)	Confidence interval (CI)
Major life events	0.835	3.923	0.048	2.304	1.009-5.263

already under psychiatric follow-up for any treatment including counseling and psychotherapy. The respondents were given all the questionnaires while they were attending the staff clinic.

### Measurements

The Hospital Anxiety and Depression Scale (HADS) is a widely used brief 14-item self-report questionnaire that measures the levels of anxiety (HADS-A) and depression (HADS-D) among non-psychiatric patients in hospital or clinic<sup>16</sup>. An overall total score indicates the level of psychological distress. Cut-offs between 8 and 10 have been advocated for 'possible cases', and scores of 11 or more for 'definite cases'. It also performs well in assessing the symptom severity and caseness of anxiety disorders and depression in somatic, psychiatric and primary

**Table 2. Health status, psychosocial and work-related risk factors of depressed vs. non-depressed employees**

	HADS-D $\geq 9$ (n = 38)	HADS-D < 9 (n = 263)	p-value
History of medical illness, n (%)			
Yes	3 (7.9)	18 (6.9)	0.737
No	35 (92.1)	244 (93.1)	
History of a surgical operation, n (%)			
Yes	5 (13.2)	31 (11.8)	0.791
No	33 (86.8)	231 (88.2)	
Physical health status, n (%)			
Good	15 (39.5)	135 (51.5)	0.021*
Fair	18 (47.4)	118 (45.0)	
Bad	5 (13.2)	9 (3.4)	
Job stability, n (%)			
Yes	31 (81.6)	238 (90.8)	0.089
No	7 (18.4)	24 (9.2)	
Relationship with superior, n (%)			
Good	34 (89.5)	248 (94.7)	0.261
Poor	4 (10.5)	14 (5.3)	
Work achievement, n (%)			
Yes	32 (84.2)	226 (86.3)	0.802
No	6 (15.8)	36 (13.7)	
Someone to talk to, n (%)			
Yes	7 (18.4)	40 (15.3)	0.634
No	31 (81.6)	222 (84.7)	
Major life event, n (%)			
Yes	10 (26.3)	34 (13.6)	0.046*
No	28 (73.7)	228 (86.4)	
LCU score, n (%)			
< 150	12 (31.6)	103 (39.3)	0.263
150-300	11 (28.9)	89 (34.0)	
> 300	15 (39.5)	70 (26.7)	
Job stress category, n (%)			
Positive	17 (44.7)	84 (32.1)	0.142
Negative	21 (55.3)	178 (67.9)	

care patients and in the general population<sup>17</sup>. In this study, the Malay version of HADS<sup>18</sup> with 93.2% sensitivity and 90.8% specificity at 8/9 cut-off points was used.

Job stress was measured by a 20-item self-rated scale from 0 (never) to 4 (almost always). Scores of 0-25, 26-40, 41-55 and 56-80 indicated adequate coping with job stress, suffering from job stress and would be wise to take preventive action, needing to take preventive action to avoid job burnout and suffering from job burnout, respectively<sup>19</sup>.

Recent SLE were scored on the Social Readjustment Rating Scale (SRRS)<sup>20</sup>, which focuses on experiences that lead to readjustment requiring changes in usual activities and analyzes stress as an external force that can be caused by both positive (e.g., gaining a new family member) and negative events (e.g., being fired at work). Respondents endorse whether or not they have experienced any of the 43 events presented within the past year. Weights were assigned ranging from 11 to 100 in terms of their judged severity. More stressful life events were given a higher score (e.g., death of spouse = 100) and events that are found to be less stressful are given a lower score (e.g., major holidays = 12). The values termed life change unit (LCU) when summed yield a total life stress score. Individuals who score < 150 points are thought to be experiencing a low level of stress comparable to that of the average population and have a 30 % or less risk for stress-related illness. Individuals who score between 150 and 300 are thought to be experiencing a moderate level of stress. Those who score > 300 points are experiencing major stress and are at elevated health risk. For the present analyses, major life events are those SLE ranging from 100 to 50 at the SRRS<sup>21</sup> i.e., death of spouse, divorce, marital separation, detention in jail

or other institution, death of a close family members, major personal injury or illness, and marriage

### Statistical analysis

Data entry and analysis were done using SPSS software. The chi-square test was used to assess the association between psychological distress, anxiety, and categorical factors. Stepwise logistic regression analysis was used when multiple variables were considered simultaneously. All the independent variables were entered into the model using stepwise multiple logistic regression with entry criteria of  $p < 0.05$ .

## RESULTS

All of the employees approached during the study were recruited into the study. A total of 300 subjects were included in the analysis after 12 were excluded due to incomplete data. Males ( $n = 154$ ; 51.3%) and females ( $n = 146$ ; 48.7%) were equally represented in this study. The majority were in the age groups 30-40 and  $< 30$  years old accounting for 158 (52.7%) and 86 (28.7%), respectively. The majority were Malays while other ethnic group included 5 Chinese, 1 Indian and 1 Siamese. Regarding marital status, 237 (79.0%) were married, 56 (18.7%) were single and 7 (2.3%) were divorced or widow. Tertiary education as their highest education in 90 (30.0%) of samples while 207 (69.0%) received secondary education.

The sample was divided into 3 categories of life events. 115 (38.3%) scored  $< 150$  LCU indicating the 1-in-3 chance of serious health change, 100 (33.3%) scored 150-300 LCU indicating 50-50 chance of experiencing a serious health change within 2 years and 85 (28.3%) scored  $> 300$  LCU indicating a high risk of developing a health problem. The 5 most frequent life events were celebrating Eid al-Fitr (*Hari Raya Puasa*), change in financial state, vacation, change in living condition and gain in a new family member.

The prevalence of depression was 12.7% in which 38 out of 300 respondents scored 9 and above on the HADS-D. The remaining 262 (87.3%) respondents scored below 9 and were considered as a non-depressed group. The prevalence job stress was 34.0% accounting for 102 out of 300 respondents. Among them, 91 (30.3%) were suffering from job stress but still able to function, 10 (3.3%) need to take precaution to prevent job burnout and 1 (0.3%) had already burnt out from the job stress.

Three variables including age ( $p = 0.032$ ), physical health status ( $p = 0.021$ ) and major life events ( $p = 0.046$ ) were significantly different between the depressed and non-depressed group. These independent variables were entered stepwise into the logistic regression model. In the final model, only major life event was a predictor of depression with an adjusted odds ratio of 2.30. There was no significant correlation between those 3 variables.

## DISCUSSION

In this study, only major life events remained significantly and independently associated with depression with an adjusted odds ratio of 2.30. Other socio-demographic characteristics including age, marital status, and duration of employment were not significantly associated. Similarly, other risk factors such as the relationship with superior, LCU score, and presence job stress were not associated with depression. This finding suggests a powerful effect of major life event on the development of depression, compared to other risk factors that are theoretically or have been shown in other studies to be associated with depression.

The finding is consistent with previous studies<sup>21-24</sup>. Indeed, major life events have been demonstrated to predict increased depression scores 8 months later<sup>25</sup>. In another study, no difference was observed for major SLE in a first and recurrent episode of depression. Major life events can precipitate the first episode and remain capable of triggering subsequent recurrent episodes of depression. Moderate and minor SLE, however, were more present in recurrent than in the first episodes<sup>7</sup>. Similarly, it was noted that severely stressful life events were significantly associated with current depressive symptoms among never-depressed women with Parkinson disease<sup>26</sup>.

Stressful life events have a substantial causal relationship with the onset of episodes of major depression. About one-third of the association between stressful life events and onsets of depression is non-causal since individuals predisposed to major depression select themselves into

high-risk environments<sup>27</sup>. A positive correlation exists between genetic risk factors for SLE and the genetic risk factors for major depression<sup>28</sup>. That is, a genetically influenced set of traits both increases individuals probability of selecting themselves into high-risk environments likely to produce stressful life events and increases their vulnerability to major depression. In a study, the mediating role of depression was demonstrated between life events and internet addiction<sup>29</sup>. Depression<sup>13</sup> and personality traits, such as impulsive sensation seeking and neuroticism-anxiety<sup>14</sup>, was associated factors with internet addiction which is considered a growing mental health problem nowadays.

The main limitation of this study is that stressful life events were based on retrospective self-report responses. Alternative methods of data capture such as cohort or longitudinal designs should be used in future studies. A second limitation is limited data on the reliability of the differentiation between major and mild or moderate stressful life events severity<sup>7</sup>. The SRRS has been criticized as having lack of accuracy and that it doesn't take into account the individual's personality, their perception of how difficult the stressor is, nor does it take into account how long the stressor continues for; the scale just gives a single number for each stressor. Despite criticism, it is one of the most widely cited measurement instruments in the stress literature. Finally, the cross-sectional study design does not allow assigning causality between the SLE and depression.

## CONCLUSIONS

Presence of major life events in the preceding year is independently associated with depression among the employees of a public university. Other socio-demographic and job-related factors were non-significant. A future in-depth study involving a bigger sample and more diverse populations is recommended. Understanding the nature and individual's perception of specific stressful life events is critical for providing effective counseling services for depressed employees.

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